What is claimed is:

1. A method of manufacturing a glass substrate for information recording media, comprising the steps of:

preparing a donut-shaped glass disk for information recording media having an outer peripheral edge surface and an inner peripheral edge surface; and

smoothing at least one of the outer peripheral edge surface and the inner peripheral edge surface of the glass disk by melt-heating to a temperature at or above a softening point of the glass by irradiating with at least one laser beam.

2. A method as claimed in claim 1, further comprising the step of processing the glass disk into a circular shape before carrying out the smoothing step.

3. A method as claimed in claim 2, further comprising the step of grinding using at least one grindstone the outer peripheral edge surface and the inner peripheral edge surface of the glass disk that has been processed into a circular shape.

4. A method as claimed in claim 3, further comprising the step of chamfering the outer peripheral edge surface and the inner peripheral edge surface into a predetermined shape after the grinding step.

5. A method as claimed in claim 1, wherein both the outer peripheral edge surface and the inner peripheral edge surface are melt-heated in the smoothing step.

6. A method as claimed in claim 5, wherein the smoothing step comprises emitting a laser beam from a single laser oscillator, and alternately irradiating the emitted laser beam onto the inner peripheral edge surface and the outer peripheral edge surface.

7. A method as claimed in claim 5, wherein the smoothing step comprises emitting a laser beam from a

single laser oscillator, splitting the laser beam into two split laser beams, and simultaneously irradiating the two split laser beams onto the inner peripheral edge surface and the outer peripheral edge surface respectively.

8. A method as claimed in claim 5, wherein the smoothing step comprises emitting a laser beam from each of two laser oscillators, and irradiating the laser beam emitted from one of the laser oscillators onto the inner peripheral edge surface, and irradiating the laser beam emitted from the other laser oscillator onto the outer peripheral edge surface.

9. A method as claimed in claim 1, wherein the at least one laser beam is a divergent beam.

10. A method as claimed in claim 1, wherein the glass disk is rotated during the smoothing step such that a speed of the inner peripheral edge surface relative to the laser beam is in a range of 0.02 to 5.0 m/minute.

11. A method as claimed in any one of claims 6 through 10, wherein a ratio of an energy density of the laser beam on the outer peripheral edge surface to an energy density of the laser beam on the inner peripheral edge surface is more than 1.

12. A method as claimed in claim 11, wherein the ratio of the energy density of the laser beam on the outer peripheral edge surface to the energy density of the laser beam on the inner peripheral edge surface is in a range of 2 to 5.

13. A method as claimed in claim 1, wherein all or part of the glass disk is heated using a resistive heater before or during the smoothing step.

14. A method as claimed in claim 1, further comprising grinding and polishing at least one major surface of the glass disk after the smoothing step.

15. A method as claimed in claim 14, wherein a

mother glass of the glass disk is a silicate glass containing one compound selected from the group consisting of Li_2O and Na_2O as an alkaline oxide component, and the method further comprises the step of carrying out chemical strengthening treatment wherein an alkaline metal ions of the alkaline oxide component in a surface layer of the glass disk is replaced with an alkaline metal ions having larger ionic radius, after the grinding and polishing of the at least one major surface of the glass disk have been carried out.

16. A glass substrate for information recording media prepared using the method claimed in claim 1.

17. A glass substrate for information recording media as claimed in claim 16, wherein an average roughness Ra of at least one of the inner peripheral edge surface and the outer peripheral edge surface is in a range of 0.001 to 0.3μm.

18. A glass substrate for information recording media as claimed in claim 16, wherein a maximum roughness Rmax of at least one of the inner peripheral edge surface and the outer peripheral edge surface is in a range of 0.01 to 2μm.

19. An information recording medium comprising a glass substrate for information recording media as claimed in any one of claims 16 to 18 with an information recording film formed on at least one major surface thereof.

20. An information recording medium comprising a glass substrate for information recording media as claimed in any one of claims 16 to 18, wherein said glass substrate has an information recording film selected from the group consisting of a magnetic recording film, an optical magnetic recording film, and an optical recording film is formed on at least one major surface thereof.

21. An information recording medium as claimed in

claim 19, wherein the information recording film is a magnetic recording film.